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Is Successful Diversification Possible, And If So, What Contributes to Success?

J.L. Stimpert

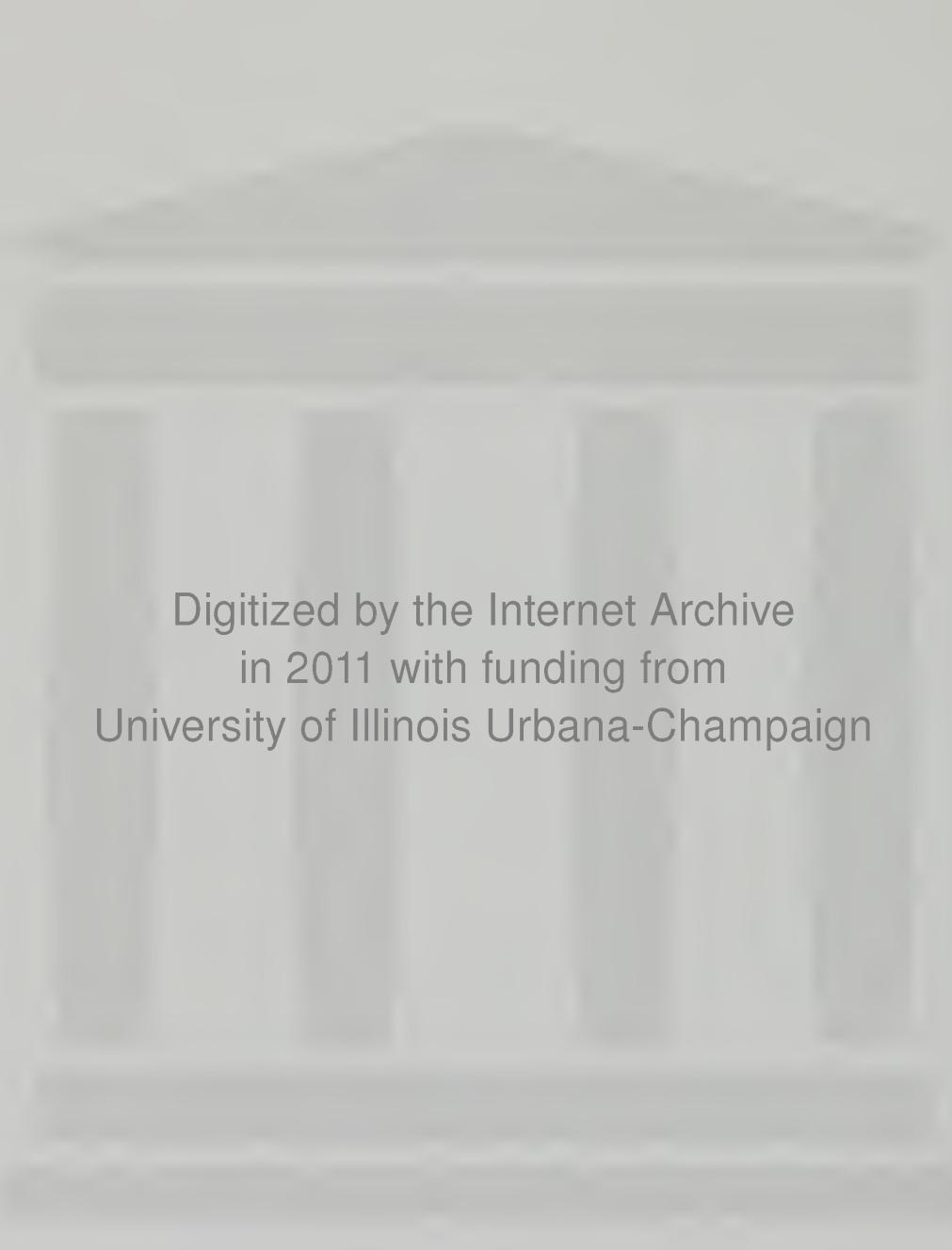
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Is Successful Diversification Possible, and if so,
What Contributes to Success?

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IS SUCCESSFUL DIVERSIFICATION POSSIBLE,
AND IF SO, WHAT CONTRIBUTES TO SUCCESS?

ABSTRACT

This paper examines the question of whether greater levels of diversification are necessarily associated with declining levels of profitability. The paper also seeks to identify what factors are associated with more successful diversified firms, and examines whether more successful diversified firms differ from less successful diversified firms in terms of industry characteristics and strategic factors. Sample firms consisted of "outliers"--firms that had experienced especially high or low levels of performance.

Our results run counter to intuition. We found no significant differences in the performance levels across groups of less diversified and more diversified high performing firms. Even more surprising, the groups of high and low performing diversified firms did not differ significantly in terms of industry characteristics and strategic factors. These results suggest new directions for diversification research. Specifically, these results suggest the need for research that would investigate the impact of less tangible resources and role of the management of diversity on firms' levels of performance.

The longstanding trend toward greater levels of diversification is one of the most characteristic features of large U.S. companies. In Strategy, Structure, and Economic Performance (1974), Rumelt traced the steady increase in the number of diversified firms and the corresponding decline in the number of single business firms following World War II. He noted that in 1949, 34.5 percent of the Fortune "500" firms could be classified as single business companies, while only 3.4 percent could be classified as pursuing unrelated diversification strategies. By 1969, however, only 6.2 percent of the Fortune "500" companies could still be classified as single business firms, while 45.2 percent could be classified as pursuing related diversification strategies and 19.4 percent could be classified as pursuing unrelated or conglomerate diversification strategies (1974:51).

This widespread diversification activity has been the focus of a significant stream of research. Rumelt's work (1974) provided an important catalyst for the study of diversification. He developed a taxonomy of diversification strategies based on the concept of relatedness, and much of the subsequent research has examined the relationship between diversification strategy and firm performance. Many of these studies agree with Rumelt's original finding, that firms pursuing related diversification strategies enjoy higher levels of performance than firms pursuing unrelated strategies (Bettis, 1981; Christensen & Montgomery, 1981; and Rumelt, 1974, 1982). Yet, other studies reach the opposite conclusion, and suggest that unrelated diversification strategies can be just as advantageous as related strategies (Bettis & Hall, 1982; Lubatkin, 1987; Michel & Shaked, 1974; and Weston, Smith, & Shrieves, 1972). So, in spite of considerable research, no consensus and few definitive conclusions seem to have emerged. (See Ramanujam & Varadarajan, 1989 for a

comprehensive review of this literature.)

Interest in diversification extends beyond the United States. A number of studies examine the relationship between diversification strategy and performance among European and Japanese companies (Channon, 1971; Grant, Jammie, and Thomas, 1988; Pavan, 1972; Pooley 1972; Suzuki, 1980; and Thanheiser, 1972). While some of these studies conclude that related diversification strategies are associated with higher levels of performance, here too we find inconsistencies. For example, a study by Grinyer, Yasai-Ardekani, and Bazzaz (1980) did not find a statistically significant relationship between diversification strategy and performance among a sample of British firms.

One fairly consistent finding that has emerged from this stream of research is that diversification strategy alone explains very little of the variation in firm performance. Bettis and Hall (1982) suggested that "industry effects" were responsible for Rumelt's original findings. More specifically, Bettis and Hall argued that firms pursuing related diversification strategies enjoyed higher performance because they participated in more profitable industries. Christensen and Montgomery (1981) reported a similar result. In a more recent study of diversification among British manufacturing firms, Grant, Jammie, and Thomas (1988) concluded that, while a significant influence on performance, diversification strategy accounted for only "a small proportion of interfirm differences in profitability. Industry membership accounted for a larger proportion" (1988:795).

Other researchers have argued that the success of a particular diversification strategy is contingent on a number of administrative factors. For example, Hill and Hoskisson (1987) argue that different diversification strategies require different organizational structures. Gupta (1987) makes a

similar argument and provides data suggesting that different strategies pursued at the business unit level require different degrees of openness and decentralization, and different types of performance assessment. Govindarajan (1988) similarly finds that different business units within the same firm might require different administrative arrangements and mechanisms.

Instead of examining the relationship between diversification strategy and performance and the impact of any moderating or contingent variables, this paper takes a different approach. We, too, examine the impact of diversification on firm performance, but at the risk of adding to the "growing confusion" (Reed & Luffman, 1986), we also seek to determine if we can identify the factors that distinguish "successful" from "unsuccessful" diversified firms.

Our study is therefore similar to a study by Bettis and Mahajan (1985), who first clustered sample firms according to their risk and return characteristics and then sought to determine how these clusters of firms differed along a number of dimensions. They found that although firms pursuing related diversification strategies tended to outperform firms pursuing unrelated strategies, related strategies offered no guarantee of high performance. In fact, a number of firms pursuing related diversification strategies were included in a cluster of low performing firms. They also found that firms in the more favorable risk-return clusters differed from firms in the cluster of low performing firms along a number of strategic dimensions. For example, firms in the more favorable risk-return clusters tended to operate in faster-growing and more profitable industries, they tended to have lower debt/equity ratios, and they also tended to emphasize R&D and advertising more than the firms in the less attractive risk-return clusters.

In part, this paper reexamines the work of Bettis and Mahajan. Such a

reexamination is important because most of the existing diversification literature draws on samples that include data from the 1970s and early 1980s, a time of business and economic volatility. For example, the time frame of the Bettis and Mahajan study is 1973 through 1977. The time frame adopted for this study, 1984 through 1988, is marked by continuous economic expansion, avoiding periods of wide cyclical and inflationary variations.

Our study also builds on the work of Bettis and Mahajan. Instead of using cluster analysis to place a large, cross-sectional sample of firms into distinct groups of firms with similar risk-return profiles, our study focuses on "outliers"--both more diversified and less diversified firms that have enjoyed either very high or very low performance. This allows us to look specifically at what high performing firms might be doing "right" as well as what low performing firms might be doing "wrong." Such an approach was recommended by Prahalad and Bettis (1986) and in a recent review article by Ramanujam and Varadarajan (1989). These researchers note that most diversification studies use large, cross-sectional samples, but suggest that an approach that would focus on a smaller number of successful and less successful firms might be helpful in identifying and studying the forces that influence diversified firms' performance levels.

RESEARCH ISSUES

This study examines four specific research issues, and this section will describe these issues, providing related theoretical background and identifying specific research propositions. The next section of the paper will describe the methodology employed to examine these propositions. Results of the data analysis

and conclusions will follow.

Are Higher Levels of Diversification Necessarily Associated with Lower Levels of Performance?

The literature suggests a number of reasons why firms might pursue a strategy of diversification. While the need to "escape" from a poor or declining industry setting, risk reduction, and various tax and financial incentives are often described as important motivations for pursuing unrelated diversification strategies, most of the literature argues that strategies seeking relatedness across a firms' businesses are clearly superior to unrelated diversification strategies.

For example, one group of researchers sees related diversification as superior to unrelated diversification because related diversification allows firms to achieve synergies from the sharing of unique resources. Rumelt, for example, suggests that firms pursuing related diversification strategies enjoy superior performance because these firms are better able to exploit certain core resources (1982). Wernerfelt elaborates on this argument, noting that resources include a broad array of tangible and intangible assets, including brand names, knowledge of technologies, employment of skilled personnel, and machinery (1984:172). Related diversification provides firms with opportunities to obtain synergies by sharing these resources across new and existing businesses.

Wernerfelt and Montgomery (1986), in an article entitled "What Is an Attractive Industry?" take this argument even further, and distinguish between what they call "efficient" and "inefficient" diversification. They argue that firms pursuing related diversification strategies are "efficient diversifiers" because they enjoy economies from sharing factors of production in related or

similar markets, while firms pursuing unrelated strategies are "inefficient diversifiers" because their participation in unrelated markets and industries does not permit factors of production to be shared across dissimilar businesses. They conclude that the question of "what is an attractive industry?" will depend on whether a firm is an "efficient" (related) or "inefficient" (unrelated) diversifier. They report evidence suggesting that firms pursuing related diversification strategies are more likely to benefit from participation in more profitable industries, while firms pursuing unrelated diversification strategies are more likely to benefit from participation in faster-growing industries.

Other researchers suggest that related diversification is superior to unrelated diversification because it avoids the administrative diseconomies associated with the complexity of operating in disparate businesses (Sutherland, 1980). Growth through diversification poses many challenges, and the increased complexity of operating in diverse businesses usually requires firms to adopt multidivisional structures. While many authors have emphasized the administrative advantages of the multidivisional structure (see especially Williamson, 1975, 1981), Sutherland takes a less sanguine view and sees adoption of the multidivisional structure as

a shift from a centralized, neatly hierarchical structure--with a singular protocol serving essentially all units--to a partitioned structure... Partitioning usually implies administrative redundancy (as "divisions" or affiliates develop managerial protocols unique to their own interests) and involves addition of new administrative levels, the most obvious being the emergence of the "corporate" staff (1980:965).

For Sutherland, any economies of scale or scope achieved by diversification are quickly overwhelmed by the diseconomies of administration associated with managing diversified firms' activities.

These issues are explored empirically by Grant, Jammine, and Thomas

(1988), who hypothesize that diversified firms will be more profitable than specialized firms, but also hypothesize that profitability declines with increasing levels of diversification. Their research supports both of these propositions. They find a quadratic relationship between diversification strategy and performance--that up to a point, diversification results in increased performance, but that beyond this point, successive increases in diversification lead to declining profitability. Other evidence supporting this perspective is found in a recent study by Williams, Paez, and Sanders (1988). They analyze the characteristics of conglomerate firms during the decade ending in 1984, and determine that during this time period, managers of conglomerates not only reduced the number of businesses they managed, but also increased the relatedness across these businesses.

On the other hand, some studies (see, for example, Dundas & Richardson, 1982) have shown that even widely diversified firms can enjoy high performance. What has not been specifically examined is whether the performance levels of these widely diversified yet high performing firms are lower than less diversified high performing firms.

This discussion of research on diversification strategy and performance suggests the first research proposition:

Proposition 1: Higher levels of diversification will be associated with lower levels of performance.

The Impact of Diversification on Efficiency and Competitiveness

Still another group of researchers argues that widespread diversification may have deleterious effects on firm efficiency and may even be responsible for declining global competitiveness among U.S. firms. For example, Hayes and

Abernathy (1980) argue persuasively that widespread diversification and the associated focus on financial control, portfolio management, and marketing detract from an emphasis on efficiency and on product and process innovation at the business unit level.

Melman (1983) also associates the trend toward increased diversification with declines in productivity. He suggests that diversification is a product of business school training that advocates the pursuit of short-term financial gains at the expense of longer-term goals and objectives. To achieve short-term financial gains, firms use the funds of existing businesses to acquire new businesses. Firms systematically fail to reinvest funds into existing businesses, and as a result, productivity and efficiency decline.

Lichtenberg, in a Wall Street Journal article entitled "Want More Productivity? Kill That Conglomerate," cites evidence that "the greater the number of industries in which a plant's parent firm operates, the lower the productivity of the plant" (1990:A22). He argues that the conglomerate merger wave of the late 1960s caused a decline in the efficiency and productivity of these firms (though he does not exactly say why or how this occurred). He suggests that this situation is now being corrected by "de-diversification," a phenomenon studied by Davis (1989). Lichtenberg notes that during the same time that many large conglomerate firms have been reducing the level of diversity, we have begun to see improvements in manufacturing productivity.

These research findings suggest the following research proposition:

Proposition 2: Higher levels of diversification will be associated with lower levels of efficiency.

Do High Performing Diversified Firms Operate in More Attractive Industries?

One of the key assumptions of industrial organization research is that firms don't matter much--that differences in profitability across firms can be largely explained by industry membership and that industry performance can be largely explained by barriers to entry and other structural characteristics. Empirical work by economists appears to support this view (Bain, 1951, 1956).

Perhaps the clearest expression of this view is in a recent article by Schmalensee. Schmalensee assesses the relative influence of industry, firm, and market share effects on profitability. Using cross-sectional data, he concludes that 1) firm effects do not exist, 2) industry effects exist and are important, 3) market share effects exist but have a negligible influence on performance, and 4) industry and market share effects are negatively correlated (1985:349). The strategic implication of Schmalensee's research for the managers of large diversified firms is straightforward--firm performance is a function of the ability to acquire business units in profitable industries.

While other researchers have found that firms pursuing related diversification strategies tend to operate in more profitable industries than firms pursuing unrelated diversification strategies (Bettis & Hall, 1982; Christensen & Montgomery, 1981), few if any studies examine the extent to which industry profitability and growth might explain performance differences of successful and less successful firms. Our second research proposition, then, deals with the influence of industry membership:

Proposition 3: Firms that enjoy higher levels of performance will tend to operate in more profitable and faster growing industries.

Do High Performing Diversified Firms Differ from Low Performing Firms along Strategic Dimensions?

Even before Rumelt's landmark research on diversification strategy, Chandler had described how diversification required firms to adopt the multidivisional structure in order to avoid problems of control loss resulting from operating in many disparate businesses (1962). Many researchers have conducted subsequent studies extending Chandler's thesis.

For example, Hill and Hoskisson (1987) take up Chandler's argument and propose that different diversification strategies require different forms of organizational structure. Specifically, different control systems and degrees of decentralization will be required to realize various economies and meet information processing requirements. Hoskisson (1987) tests these propositions and finds that the multidivisional structure does improve the performance of firms pursuing unrelated diversification strategies, but does not improve the performance of firms pursuing related diversification strategies. Hoskisson reasons that the information and coordination needs of firms pursuing a related strategy might be so great that the multidivisional structure would not be appropriate.

The relationship between the choice of organizational structure and firm performance has received considerable research attention (See also Williamson, 1975, 1981; and other studies including Harris, 1983 and Mahajan, Sharma, & Bettis, 1988). Like studies examining the relationship between diversification strategy and performance, the results of organizational structure studies are often inconsistent or report only inconsequential impacts. Prahalad and Bettis argue that one explanation for these findings is that while structure "can attenuate the intensity of strategic variety that corporate-level management

must deal with, ... it cannot substitute for the need to handle strategic variety at the corporate level" (1986:496).

Considering the influence of certain strategic decisions on firm performance might be a more fruitful direction for studying the strength of firm-specific factors. We do have some evidence that decisions about the levels of research and development, advertising, and capital investment may be important influences on firm performance. Bettis (1981), for example, found that firms pursuing related diversification strategies enjoyed higher performance, but that these high performing firms also had higher levels of research and development expense, advertising expense, and capital expenditures. Similarly, Bettis and Mahajan (1985) find that regardless of the choice of diversification strategy, high performing firms tend to share these same characteristics. Hill and Snell (1988) find that the level of research and development expense is positively correlated with productivity.

Most of these studies go beyond the question of whether related or unrelated diversification strategies are inherently superior, and focus instead on the factors that contribute to the success of a chosen strategy. These studies suggest that it is not really the diversification strategy that influences firm performance so much as other firm-specific strategic choices that accompany the diversification strategy decision. These studies suggest the final research proposition to be examined in this paper:

Proposition 4: Firms that enjoy higher levels of performance will tend to have higher levels of capital expenditures, advertising expense, and research and development expense.

METHODOLOGY

Sample

Unlike Bettis and Mahajan who used cluster analysis to identify groups of firms, we explicitly sought to identify high and low performing and more diversified and less diversified firms. The aim was to delineate four groups of "outliers." These groups would include firms that were 1) less diversified high performing, 2) less diversified low performing, 3) more diversified high performing, and 4) more diversified low performing.

To obtain these groups of outliers, we first identified all firms from the 1989 Fortune "500" for which data were available for each of the five years 1984 through 1988. This effectively eliminated firms that were privately held or were acquired or taken private during this five-year time frame, leaving a group of 329 firms. Of these 329 Fortune "500" firms, 61 reported accounting results for only one business segment, and these firms were dropped from the analysis. We then sorted the remaining 268 firms according to the extent of their diversification and their levels of performance. First, we retained the one-third most diversified and the one-third least diversified firms, dropping the other firms from the analysis (see below for a description of the diversification measure we used). Then, to distinguish high performing from low performing firms, we required that firms in the more and less diversified high performing groups have above-median values on several performance measures (see below for explanations of the performance measures we used) and that firms in the more and less diversified low performing groups have below-median values on those performance measures. A list of the firms in each of the resulting four diversification-performance groups is shown in Table 1.

Insert Table 1 about here

Sample observations are five year means. All data required for this study were gathered from the Compustat database. This database consists of financial and market performance data for over 6,000 firms. The database also includes financial data on the business segments of these firms as required by the Financial Accounting Standards Board's (1988) Statement of Financial Accounting Standards No. 14, "Financial Reporting for Segments of a Business Enterprise."

Variables

Performance. To identify high and low performing firms, we first used return on assets (ROA), where ROA is net income as a proportion of total assets. While a variety of other accounting and market measures could conceivably have been used to assess firm performance, we agree with Holzmann, Copeland, and Hayya (1975) and Bettis and Mahajan (1985) that ROA is widely viewed and accepted by managers as a measure of firm performance and the success of business strategies.

In addition to measuring firms' absolute levels of performance and to control for variations in industry profitability, we also assessed their performance relative to the average level of performance in their industries. To do this, we created a second performance variable, adjusted ROA (ROAADJ), that standardized ROA according to the industries in which these firms participated. ROAADJ is given by the following formula:

$$\text{ROAADJ} = (\text{ROA} - \sum m_{ij} \text{ROA}_{j4}) / \text{SDROA}_{j4},$$

where m_{ij4} is the proportion of firm i's sales in four-digit industry j, ROA_{j4} is the return on assets in four-digit industry j, and $SDROA_{j4}$ is the standard deviation of ROA_{j4} .

Diversification. Diversification (DIV) is assessed using a conventional continuous measure similar to the entropy measure used by Palepu (1985). A useful feature of the measure we chose, which was developed by Davis and Duhaime (1989), is that it uses SIC classifications and business segment data available from the Compustat database to identify and evaluate the extent of diversification.¹

Efficiency. To examine whether diversification has an impact on efficiency, we used two variables, gross margin (MARGIN) and turnover (TURNOVER). The formulas for these two variables are:

$$MARGIN = [GM_i - (\sum m_{ij4}GM_{j4})]/SDGM_{j4},$$

and

$$TURNOVER = [TURN_i - (\sum m_{ij4}TURN_{j4})]/SDTURN_{j4},$$

where GM_i and $TURN_i$ are the gross margin and turnover ratios of firm i, GM_{j4} and $TURN_{j4}$ are the gross margin turnover ratios in four-digit industry j, and $SDGM_{j4}$ and $SDTURN_{j4}$ are the standard deviations of the gross margin and turnover ratios in four-digit industry j.

Industry characteristics. To assess the impact of industry membership,

¹The extent of diversification (DIV) is the sum of measures for related diversification (DR) and unrelated diversification (DU), where

$$DR = \sum [(\frac{m_{ij4}}{m_{ij2}}) \ln(\frac{m_{ij2}}{m_{ij4}})] m_{ij4}$$

and

$$DU = \sum m_{ij4} \ln(1/m_{ij4}),$$

where m_{ij2} = the proportion of firm i's sales in two-digit industry j.

we used average industry return on assets (INDROA) and the mean five-year industry growth rate (INDGROW) to assess industry characteristics. Formulas for INDROA and INDGROW are:

$$\text{INDROA} = \sum m_{ij4} \text{ROA}_{j4},$$

and

$$\text{INDGROW} = \sum m_{ij4} \text{GROW}_{j4},$$

where GROW_{j4} is the average annual change in sales in four-digit industry j from 1984 to 1988.²

Strategic variables. We examined the impact of three strategic variables: the levels of capital investment (CAPEXP), research and development expense (R&DEXP), and advertising expense (ADVEXP). Each of these variables was adjusted for industry differences by standardizing the firm data. For each variable, the respective formulas are

$$\text{CAPEXP} = [\text{CAP}_i - (\sum m_{ij4} \text{CAP}_{j4})] / \text{SDCAP}_{j4},$$

$$\text{R&DEXP} = [\text{R&D}_i - (\sum m_{ij4} \text{R&D}_{j4})] / \text{SDR&D}_{j4},$$

and

$$\text{ADVEXP} = [\text{ADV}_i - (\sum m_{ij4} \text{ADV}_{j4})] / \text{SDADV}_{j4},$$

where CAP_i , R&D_i , and ADV_i are the ratios of research and development expense and capital investment to sales for each firm i , CAP_{j4} , R&D_{j4} and ADV_{j4} are the mean ratios of capital investment, research and development expense, and advertising expense to sales in four-digit industry j , and SDCAP_{j4} , SDR&D_{j4} , and SDADV_{j4} are the standard deviations of the ratios of capital investment, research and development expense, and advertising expense to sales in four-digit

²Some missing industry sales data reduced the number of sample observations.

industry j respectively.

Not all companies report research and development expense. Even fewer companies report detailed advertising expense figures. In addition, one sample firm's advertising expense figures were so divergent from the rest of the sample firms that this observation was excluded. This exclusion and missing data reduced the number of observations in some cases; the number of observations of each variable in each group is given in Table 2.

Nearly all of the variables in this study are either industry means or are adjusted using industry means. Other studies requiring firms' industry means typically use the industry average of the primary or largest business segment. Since conditions and performance levels can vary widely across the industries in which multibusiness firms compete, this is an incomplete and possibly misleading industry average for multibusiness firms. Our construction of composite industry means that are weighted averages of all industries in which a multibusiness firm competes gives us greater confidence in the validity of our results than if we had used previous methods.

RESULTS

We used the Scheffe method of multiple comparisons to test for differences in each variable among the four groups of firms. Results are presented in Table 2. To answer the question posed in the first half of the title, the results of this study suggest that yes, successful diversification is possible. While the mean ROA of firms in the more diversified high performing group is lower than the mean ROA of firms in the less diversified high performing group, the difference is not significant.

Insert Table 2 about here

While the data do not support the first proposition, the sizes of the various diversification-performance groups do suggest that achieving success may become more difficult as diversity increases. Note that while 40 firms in the less diversified high performance group met the performance criteria, only 29 firms in the more diversified high performance group did. Note also that the likelihood of low performance may also increase as diversity increases. While only 29 firms in the less diversified low performance group meet the low performance criteria, 46 firms fell into the more diversified low performance group. A chi-square test shows that the possibility of these group sizes occurring by chance is remote ($\chi^2 = 4.62$, $p < .05$).

Nor do the results support the second proposition. More diversified firms are not less efficient in terms of gross margin or turnover ratios. In fact, the only significant difference among any of the four groups was that firms in the less diversified low performing group had significantly lower gross margins than the firms in the less diversified high performing group.

Turning now to the question posed in the second half of this paper's title, the results provide little evidence that industry characteristics and other strategic factors contribute to the success of the high performing groups of firms. The results provide little support for Propositions #3 and #4. While the less diversified high performing firms tended to be in more profitable and faster growing industries than the more diversified high performing firms, the differences were not significant. The only significant difference in industry

characteristics among the four groups was that the less diversified high performing firms were in significantly more profitable industries than the less diversified low performing firms.

Unlike the Bettis and Mahajan study which found significant differences in a number of strategic variables across clusters of firms with different risk-return profiles, this study finds no significant differences in the strategic variables across the four diversification-performance groups. Moreover, no discernable patterns emerged. As already noted, Bettis and Mahajan found that firms in clusters with more favorable risk-return characteristics spent more heavily on capital investments, research and development, and advertising. Many of the results reported here contradict the findings reported by Bettis and Mahajan. In fact, the less diversified low performing firms out-spent firms in the other three groups on capital investment, research and development, and advertising. Firms in the more diversified low performing group did have the lowest levels of capital investment and research and development, but again, none of these differences were significant.

DISCUSSION

The results are surprising because not only do they contradict the results of earlier research findings and fail to support any of our research propositions, but they also run counter to intuition. When comparing successful and less successful groups of firms, we would expect to find that high and low performing groups differ along strategic and other dimensions. We will consider here a number of possible explanations that may account for the homogeneity across the groups.

First, the difference in time periods may account for findings that contradict earlier research studies. The turbulent 1970s may have rewarded firms operating in more profitable and faster growing industries. Similarly, firms that participated in these more profitable and faster growing industries in the turbulent 1970s may also have been rewarded for making important commitments to capital investment, research and development, and advertising. The 1980s may have been a less difficult environment in which to compete, allowing some firms to enjoy high performance in spite of only average commitments to capital investment, research and development, and advertising.

Second, though specifically recommended in recent articles, our methodology of using a stratified sample of "outliers" may also be responsible for these findings. Though we sought to be as objective as possible in creating our four diversification-performance groups, a procedure that excludes a large number of "middle-range" firms may obscure trends or patterns that might exist in a large, cross sectional sample. By focusing on outliers, we may in fact be examining firms that are anomalies, not simply firms with exaggerated diversification and performance patterns.

Alternatively, supposing that our results are valid and our methodology is appropriate, the results would certainly agree with the observation of Prahalad and Bettis (1986) and Ramanujam and Varadarajan (1989) who argue that the management of a given level of diversification may be more important than the extent of diversification or the content of a particular diversification strategy. Assigning firms to more and less diversified categories tells us little about the management of diversity at these firms. Yet, if the management of a given level of diversification is what really influences performance levels, then we would expect to see wide variations in performance among firms

pursuing both related and unrelated diversification strategies. This suggests the need to develop further our understanding of the management of diversification.

Currently, only a few conceptual or empirical studies of diversification focus on the process of managing diversification. In a recent conceptual paper, Jones and Hill (1988) argue that while related diversification would seem intuitively to offer greater opportunities for obtaining synergies, related diversification might also require very high bureaucratic and coordination costs in order to realize these synergies. Similarly, while unrelated diversification might offer fewer opportunities to realize synergies across businesses in a firm's portfolio, a firm pursuing unrelated diversification might be able to keep administrative costs at very low levels. The managers of successful diversified firms, whether "related" or "unrelated," may be those that best understand that tension and the need to find a balance between potential synergies and administrative and coordination costs.

Finally, as Montgomery (1990) recently suggested, competitive advantage and superior performance may be derived from less tangible or measurable sources. Indeed, as Barney (1986) has argued, it is unlikely that competitive advantage is really gained from factors that are easily acquired, duplicated, or imitated. While two firms might make relatively equal investments in new plant technology, one of the firms might enjoy significantly higher levels of productivity due to other, less easily duplicated resources. Studies examining the influence of these kinds of resources may offer insights that would improve our understanding of the factors influencing successful diversification.

The arguments made by Montgomery and Barney might become clearer if we consider a few examples. Consider first the Coca-Cola Company, which is not

extensively diversified and is highly successful. In fact, some of the Coca-Cola Company's greatest missteps have occurred when the company has sought to diversify outside its core beverage business. A recent Wall Street Journal article (McCarthy, 1989) describes how Coca-Cola carefully cultivates and fiercely protects its image as "the all-American product" in order to promote sales of its soft drink products abroad. Much of Coke's success is due to consistency in the use of its ubiquitous red and white trademark.

Likewise, a more diversified, yet similarly high performing company, Minnesota Mining and Manufacturing (3M), may derive much of its success from administrative arrangements and an organizational structure that enhance its ability to develop innovative products. These include a requirement that 25 percent of annual sales must be from products that have been developed within the previous five years, creation of new operating divisions whenever an existing one reaches \$200 million in sales, and arrangements that allow employees to spend up to 15 percent of their time on "pet projects" (Mitchell, 1989). This consistently high-performing company produces over 60,000 different commercial and industrial products. Other large firms apparently find these arrangements and structure difficult to imitate or implement, since few companies are able to equal or match 3M's innovation record.

By contrast, companies like W. R. Grace and Whitman (formerly IC Industries) suffer from low performance. Unlike Coca-Cola and 3M, these companies seem to lack a focus, dominant trademark, or an organizing framework or structure that would enhance performance. In fact, a problem with many low-performing diversified companies may be their inability to provide a unifying structure or theme. Interestingly, both Grace and Whitman have sought in recent years to become more focused. Grace, for example, has begun to shed its less

profitable agricultural products segment. Whitman has recently divested several of its industrial products businesses as well as its Illinois Central Railroad unit, and has begun to strengthen its consumer products and services businesses through selected acquisitions.

CONCLUSION

The use of a sample of outliers and, for some of the variables, the lack of complete data, make this study exploratory and the findings preliminary. Nevertheless, the surprising lack of significant differences in industry characteristics and strategic dimensions across the four groups of firms suggests the need for new directions in diversification research. The results suggest that the search for the factors that contribute to competitive advantage may need to go beyond the traditional, more easily measured strategic variables. Instead, we may need careful, clinical analyses of how less tangible factors and resources contribute to performance. Such a research effort would include an examination of the factors leading to competitive advantage in diversified firms and would also be an important and logical extension of research on the resource-based view of the firm (Barney, 1986; Dierickx & Cool, 1989; and Wernerfelt, 1984).

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TABLE 1

List of Sample Firms in Various Diversification-Performance Groups

<u>Less Diversified High Performing Firms (N = 40)</u>	<u>Less Diversified Low Performing Firms (N = 29)</u>
Affiliated Publications	Air Products & Chemicals, Inc.
Anheuser-Busch Companies, Inc.	Aluminum Company of America
Banta Corporation	Asarco, Inc.
Becton Dickinson & Company	Baker-Hughes, Inc.
Borden, Inc.	Bethlehem Steel Corporation
Clorox Company	Bowater, Inc.
Coca-Cola Company	Burlington Holdings, Inc.
Dana Corporation	Cameron Iron Works
Dean Foods Company	Caterpillar, Inc.
Dover Corporation	Chevron Corporation
Dow Jones & Company, Inc.	Cincinnati Milacron, Inc.
Emerson Electric Company	Clark Equipment Company
Exxon Corporation	Adolph Coors
Gannett Company	Deere & Company
General Dynamics Corporation	Federated Paper Board Company
Harsco Corporation	Goodyear Tire & Rubber Company
Holly Farms Corporation	Grow Group, Inc.
Kimberly-Clark Corporation	Grumman Corporation
Louisiana-Pacific Corporation	M. A. Hanna Company
Eli Lilly & Company	James River Corporation
Lockheed Corporation	Pentair, Inc.
Longview Fibre Company	Revlon Group, Inc.
Masco Corporation	Scott Paper Company
Merck & Company	A. O. Smith Corporation
New York Times Company	Southdown, Inc.
Paccar, Inc.	Sundstrand Corporation
Pfizer, Inc.	Texaco, Inc.
Phillips-Van Heusen	Timken Company
Pitney-Bowes, Inc.	Westmoreland Coal Company
Ralston Purina Company	
Rohm & Haas Company	
Sherwin-Williams Company	
Sonoco Products Company	
Squibb Corporation	
Standard Products Company	
Tecumseh Products Company	
Trinova Corporation	
Universal Corporation	
Westvaco Corporation	
Willamette Industries	

List of Sample Firms in Various Diversification-Performance Groups, continued

More Diversified
High Performing
Firms (N = 29)

American Brands, Inc.
Ametek, Inc.
Armstrong World Industries, Inc.
Brunswick Corporation
Calmat Company
Carlisle Companies, Inc.
Crane Company
EG&G, Inc.
Ethyl Corporation
Fuqua Industries, Inc.
Gencorp, Inc.
General Electric Company
Gerber Products Company
Gillette Company
Hercules, Inc.
Johnson & Johnson
Mapco, Inc.
Martin Marietta Corporation
Minnesota Mining & Manufacturing
Pennzoil Company
Philips Industries, Inc.
Pittway Corporation
Raytheon Company
Rockwell International Corporation
Sara Lee Corporation
Teledyne, Inc.
Time, Inc.
Westinghouse Electric Corporation
Worthington Industries

More Diversified
Low Performing
Firms (N = 46)

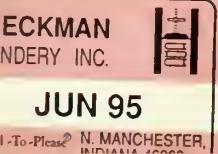
Agway, Inc.
Allied Signal, Inc.
American Maize Products
Amax, Inc.
Amsted Industries
Ashland Oil, Inc.
Atlantic Richfield Company
Avon Products
Boise Cascade Corporation
Coastal Corporation
Danaher Corporation
Dresser Industries, Inc.
DWG Corporation
Eagle-Picher Industries
Fairchild Industries
Figgie International
General Signal Corporation
B. F. Goodrich Company
W. R. Grace & Company
Handy & Harman
Inspiration Resources
Interco, Inc.
International Paper Company
Kerr-McGee Corporation
Litton Industries, Inc.
Manville Corporation
Mapco, Inc.
Masco Industries, Inc.
Media General
Mitchell Energy & Development
Murphy Oil Corporation
Olin Corporation
Owens-Illinois, Inc.
Perkin-Elmer Corporation
Phillips Petroleum Company
Sequa Corporation
Tenneco, Inc.
Texas Instruments, Inc.
Tyler Corporation
Unilever
Varian Associates, Inc.
Warner Communications, Inc.
Weyerhaeuser Company
Whitman Corporation

TABLE 2
Results of Analysis of Variance³

Variable	Means for				F-Ratio	P
	Less Diversified High Performing Firms (N = 40)	Less Diversified Low Performing Firms (N = 29)	More Diversified High Performing Firms (N = 29)	More Diversified Low Performing Firms (N = 46)		
ROA	0.092 (40)	0.012 (29)	0.087 (29)	0.018 (46)	78.45	.0001
DIV	0.440 (40)	0.461 (29)	1.196 (29)	1.138 (46)	193.82	.0001
MARGIN	3.114 (40)	-0.152 (29)	1.260 (29)	-0.406 (46)	7.66	.0001
TURNOVER	2.634 (40)	0.203 (29)	1.487 (29)	0.277 (46)	2.08	.1059
INDROA	0.061 (40)	0.029 (29)	0.047 (29)	0.044 (46)	10.96	.0001
INDGROW	0.132 (34)	0.073 (26)	0.118 (26)	0.072 (43)	2.58	.0562
CAPEXP	0.095 (40)	1.494 (28)	0.032 (29)	-0.513 (46)	1.35	.2596
R&DEXP	3.366 (24)	5.648 (24)	2.372 (20)	1.156 (32)	0.78	.5054
ADVEXP	0.634 (22)	9.103 (8)	3.608 (15)	1.757 (16)	0.79	.5027

Numbers in parentheses represent the number of sample observations.

³Aside from the two high performing groups enjoying significantly higher ROAs than the two low performing groups, and the two more diversified groups having significantly higher levels of diversification than the two less diversified groups, the only other significant differences across groups was in mean levels of gross margin and industry profitability. The less diversified high performing firms were in significantly more profitable industries and enjoyed significantly higher margins than the less diversified low performing firms.



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